

CLAIMS

1. A method for treating waste water by a membrane bioreactor comprising a sludge dewatering step and a recycling, to the head of the bioreactor, of the liquid effluent from the sludge dewatering, characterized in that:
 - the biological sludge extracted from the bioreactor (1) is contacted with the liquid effluent from the sludge dewatering step, so that the residual content, in said effluent, of polyelectrolyte used to condition the sludge during the dewatering step (4) moves toward the biological sludge;
 - the biological sludge is separated from the liquid effluent so as to produce a polyelectrolyte-free liquid effluent, on the one hand, and a polyelectrolyte-loaded biological sludge, on the other hand;
 - the polyelectrolyte-free liquid effluent is recycled to the head of the membrane bioreactor, and
 - the polyelectrolyte-loaded biological sludge is sent to the dewatering step.
2. The method as claimed in claim 1, characterized in that the biological sludge is separated from the liquid effluent by filtration on microfiltration or ultrafiltration membranes (3), the cutoff threshold of said membranes being significantly lower than the molecular weight of the polyelectrolytes used during the sludge dewatering.